

REMARKS

Responsive to the final Office Action mailed July 26, 2007, Applicants have studied the Examiner's comments and the cited art. Claims 46, 65, 70, 88, 89, 90 and 92-98 have been amended without prejudice. Claims 43, 44, 46, 48-54, 56-61, 64-68, 70-78, 88-90 and 92-100 are pending. Claims 43, 44, 48-54, 56-61, 64-68, 70-78 and 88 are allowed and claims 99 and 100 are objected to. Claims 46, 89, 90 and 92-98 are rejected as being obvious over the relied on prior art. Independent claims 93-98 are all the independent claims filed on December 23, 2005 in European Patent Application No. 05112881.7, a division of European Application No. 00906522.8 that corresponds to the present application, except in claims 93 and 94 "riser" was substituted for "casing." In view of the following remarks, Applicants respectfully submit that the application is in condition for allowance.

Claim Rejections Under 35 U.S.C. § 103(a)

Claim 90 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Harrison (US 3,638,721) (see figure 3) or Williams et al (US 5,662,181) (see figure 3) in view of Knox (US 2,609,836) or Watkins (US 3,603,409) or Jones (US 3,443,643), with the Examiner stating:

Either Harrison or Williams et al discloses the invention as claimed **except for the valve in fluid communication with the housing opening**. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide either Harrison or Williams et al with a valve as claimed in view of the teaching of Knox, Watkins or Jones so that the pressure or/and flow rated (sic) can be effectively controlled when desired. (bold added)

In response to the rejection, Applicants have amended claim 90 as provided below:

90. (Currently Amended) A system adapted for use with a marine riser, a drilling fluid and a tubular, comprising:

a housing having a housing opening to discharge the drilling fluid from the marine riser,

a valve in fluid communication with the housing opening to manage pressure in the marine riser,

an assembly removably positionable within the housing, comprising:

a sealing member, which rotates relative to the housing, and seals with the tubular.

“[R]ejections on obviousness ground cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006) cited with approval in *KSR Int'l Co., Teleflex Inc.* 127 S. Ct. 1727, 82 USPQ 2d at 1396 (2007). The Examiner has not provided a sufficient reason or explicit analysis of why the disclosures of the references should be combined. See *Ex Parte Erkey*, No. 2007-1375 (B.P.A.I. May 11, 2007) (slip op. at 8 – not binding precedent of the Board).

As previously found in the preamble of claim 90 and now an element in the body of claim, claim 90 is for a system adapted for use with a marine riser. None of the five patents propose a marine riser – and two of the patents teach away from using a marine riser.

Neither the '721 Harrison patent nor the '181 Williams patent, which were cited by Applicants and incorporated by reference into the present application, disclose “a valve in fluid communication with the housing opening to manage pressure in the marine riser.” The Examiner has previously admitted in numbered paragraph 6 of the October 20, 2006 Office Action “that the rotating head of Harrison does not include a ‘pressure relief mechanism’.”

Also, the '836 Knox, '409 Watkins, and '643 Jones (filed in 1966) patents do not disclose a pressure relief mechanism to manage pressure in a marine riser. In fact, the '409 Watkins patent (filed in 1969) teaches away from use of a large diameter riser in the 1960s, wherein it states as follows:

In subsea drilling, particularly in deep water locations, the use of such large diameter risers becomes impractical because of the high stresses imposed on the riser by surface and subsea water currents, weight of the drilling fluids or mud and uncontrolled movement of the floating vessel relative to the subsea well. In order to attempt to overcome these difficulties, it has been common heretofore to try to maintain the riser in tension between the vessel and subsea well by employing expansive cumbersome devices which have not proved entirely satisfactory. In deep water subsea locations, it is desirable to eliminate the expansive and cumbersome devices referred to above. **This has been accomplished heretofore by the use of only the drill string and small diameter circulating lines connected between the subsea equipment and the drilling rig. In this arrangement, a rotating blowout preventer is provided on the top of the blowout stack provided at the well head.** (bold added)

Col. 1., lns. 15-31.

The '721 Harrison patent, also filed in 1969, confirms these technological difficulties and in teaches away from using a riser, as shown in Figure 2. Also see the Leach patent (US 4,813,495), filed in 1987, that teaches away from using a riser in deep water drilling with a

rotating head assembly at Col. 1, lns. 10-14 and 35-40. *See Monarch Knitting Machinery v. Sulzer Morat GmbH*, 139 F.3d 877, 885 (Fed. Cir. 1998) ("A prior art reference may be considered to teach away when 'a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.' General skepticism of those in the art – not amounting to teaching away – is also 'relevant and persuasive evidence' of nonobviousness. . . . In effect, 'teaching away' is a more pointed and probative form of skepticism expressed in the prior art. In any case, the presence of either of these indicia gives insight into the questions of obviousness.").

The '836 Knox patent (filed in 1946) fails to disclose a rotating control device. (But see Col. 8, lns. 50-66). Moreover, the '836 Knox patent does not propose a valve "to manage pressure in a marine riser." Instead a flow control valve 35 in the '836 Knox patent is to "be considered as closed, throughout all operations." *See* Col. 5, lns 5-9.

In conclusion, it would not have been obvious to combine the patents, and even if they were combined, none of them disclose a marine riser, much less a valve used to manage pressure in a marine riser.

Claims Rejections Under 35 U.S.C. § 103(a)

Reference II/'721 Harrison Patent

Claims 89 and 92-98 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the April 1998 Offshore Drilling with Light Weight Fluids Joint Industry Project Presentation (Reference II on PTO-1449 filed 5/7/2004) ("Reference II") in view of Harrison, U.S. Patent No. 3,638,721 or vice versa, with the Examiner stating:

Reference II discloses a method of drilling an offshore well with lightweight fluids. On page C-9, it discloses the use of a rotating head at the top of a riser without telescopic joint. **Reference II does not disclose the structure of the rotating head.** Harrison '721 discloses a method and apparatus for drilling an offshore well from a floating vessel as that of Reference II. However, Harrison teaches using a rotating head 22 including a housing 42 that rotatably supports a removable seal member 40 and has an opening 60 for returning drilling fluid to the floating vessel through a flexible pipe 35. The rotatable seal member 40 is movable with an inner member 41 to sealably engage a rotatable drill string. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use of (sic) a rotating head having a structure as claimed in the Reference II in view of the teaching of Harrison.

Alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a riser in Harrison and locate the

rotating head 22 above the riser as claimed in view of the teaching of Reference II.

With respect to claims 89 and 92, the “inner member,” “radially outwardly disposed outer member,” “bearings,” “seal” and “housing” as recited do not distinguish from elements (41), (43), (44a), (40) and (42) respectively of the rotating control head of Harrison. It is noted that the uppermost portion of bearing element 41 is located radially inward of the radially outer portion of retainer plate 43.

As further for claims 89 and 92, contrary to applicant’s argument, none of the bearings 44a which are in contact with the inner members 41 are in contact with the housing 42 as recited.

As for claims 93-94, contrary to applicants’ argument, the flexible pipe 35 of Harrison is considered as “means for moving the drilling fluid from the riser adjacent a first level of the floating structure to a second level of the floating structure above the first level” as claimed. The “first level” is the level where the flexible pipe is connected to the riser” and the “second level” is the level of a container on the floor of the floating structure into which the drilling mud returns.

As for claims 95-98, in response to applicant’s argument based upon the age of the references, contentions that the reference patents are old are not impressive absent a showing that the art tried and failed to solve the same problem notwithstanding its presumed knowledge of the references. See *In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977).

In response to applicant’s argument that the examiner’s conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant’s disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

All of the claims rejected (89 and 92-98) are in independent form. The Office Action admits that “Reference II does not disclose the structure of the rotating head,” and attempts to fill the gap by combining Reference II with the method and apparatus of Harrison. Even if it was obvious to combine the disclosures of the April 1998 Reference II and Harrison, filed almost thirty (30) years before the April 1998 Reference II, which Applicants do not admit, as shown

below, Reference II and Harrison fail to teach or suggest a rotating control head in which a housing receives an inner member and an outer member as in Applicants' amended claims 89 and 92. The present application is a continuation of resulting U.S. Patent No. 6,263,932 where both Reference II and the '721 Harrison patent were cited. In the Notice of Allowability mailed in the application resulting in claims 1-30 of U.S. Patent No. 6,263,982, Examiner Dang stated:

The following is an examiner's statement of reasons for allowance:

As for claims 1-20, no prior art discloses or renders obvious a system adapted for use with a structure for drilling in the floor of an ocean using a rotatable tubular and drilling fluid when the structure is floating at a surface of the ocean as claimed and including a housing having an opening to discharge the drilling fluid received from the riser, the housing mounted on the top of the riser and containing a removable bearing assembly having an inner sealing member rotatable with a drill string relative to an outer member and wherein the floating structure moves independent of the bearing assembly (or the housing) when the drill string (or tubular) is sealed by the seal and the drilling string (or tubular) is rotating. **As for claims 21-25**, no prior art discloses or renders obvious a method for sealing a riser while drilling in the floor of an ocean from a structure floating at a surface of the ocean using a rotatable tubular and pressurized drilling fluid as claimed and including the steps of allowing the housing (on the top of the riser) to move independent of the floating structure and compensating for the relative movement of the structure and the housing during the step of communicating. **As for claims 26-30**, no prior art discloses or renders obvious a method for communicating drilling fluid from a casing fixed relative to an ocean floor to a structure floating at a surface of the ocean while rotating within the casing a tubular as claimed and including the steps of allowing the housing (positioned on a first level of the floating structure) to move independent of the floating structure and moving the fluid from the tubular up the casing to a second level of the floating structure above the housing. (bold added)

Furthermore, to successfully argue combination of prior art elements according to known methods to yield predictable results, the U.S. Patent Office Examiner must articulate the below findings:

- (1) a finding that the prior art included each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference;

- (2) a finding that one of ordinary skill in the art could have combined the elements as claimed by known methods, and that in combination, each element merely would have performed the same function as it did separately;
- (3) a finding that one of ordinary skill in the art would have recognized that the results of the combination were predictable; and
- (4) whatever additional findings based on the *Graham* factual inquires may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

Applicant submits that the elements of the relied on prior art in combination do not merely perform the function that each element performs separately. In particular, only Reference II proposes a rotating head for replacing a diverter or on top of a diverter (above the rotary table) for offshore drilling with lightweight fluids. As discussed above, both the '409 Watkins patent and the '721 Harrison patent teach away from using a marine riser and instead position a rotating head below the surface of the ocean above the wellhead. The '643 Jones patent (see Col. 4, lns. 5-18), the '186 Murray patent, and the '181 Williams patent propose rotating heads – but none for use with a marine riser, much less a floating rig.

Applicants claimed invention does not merely perform the function that each of above elements performs separately. In particular, Applicants rotating control head system for floating drilling rig applications using a marine riser is 1) compatible with underbalanced drilling and gas-liquid mud systems on floating drilling rigs, and 2) enables the use of pressurized mud systems so that the location of separators and shale shakers on floating drilling rigs are not limited by elevation.

Applicants achieve the above synergistic results by managing pressure in a marine riser by containing pressure on the fluid in the marine riser while drilling. Additionally, this pressurized fluid is communicated to a floating drilling rig by a flexible conduit to accommodate relative movement of the fixed riser and the moving floating rig.

89. (Currently Amended) A system adapted for use with a rotatable tubular and a drilling fluid, comprising:

- a marine riser for use with the rotatable tubular;
- an assembly removably disposed above a portion of the marine riser, the assembly comprising:

an inner member having a radial outward surface rotatable relative to the marine riser and having a passage through which the rotatable tubular may extend;
~~an a radially outwardly disposed~~ outer member disposed with the inner member;
a plurality of bearings on the radial outward surface of ~~contacting~~ the inner member; and
a seal moving with the inner member to sealably engage the tubular so that said assembly manages pressure on the drilling fluid in the marine riser while the tubular rotates; and
a housing, the assembly removably disposed within the housing without any of the bearings on the radial outward surface of the inner member being in contact with the housing.

Claim 89 has been amended so that none of the bearings contacting the radial outward surface of the inner member, i.e., the Harrison bearings 44, are in contact with the housing. As admitted, Reference II does not disclose the structure of the rotating head and the '721 Harrison patent discloses bearings 44 (contacting the radial outward surface of inner element 41) being in contact with housing 42.

Also, as submitted above, claim 89 is not obvious as amended to “manage pressure on the drilling fluid in the marine riser.”

Therefore, Reference II and Harrison, alone and in combination, fail to teach or suggest all of the elements of Applicants' claimed subject matter. For these reasons, Applicants respectfully request withdrawal of the rejection.

92. (Currently Amended) A system adapted for use with a structure for drilling in a floor of an ocean using a riser, a rotatable tubular and a drilling fluid when the structure is floating on a surface of the ocean, the system comprising:

a housing disposed on top of said riser and having a first housing opening to discharge drilling fluid received from said riser;

an assembly adapted for removable positioning with said housing and having an inner member, a radially outwardly disposed outer member, and a plurality of bearings, wherein

the inner member having a radial outward surface ~~[[is]]~~ rotatable relative to the riser and ~~[[has]]~~ a passage through which the tubular may extend, and

the plurality of bearings disposed on the radial outward surface of ~~contacting~~ the inner member without any of the bearings being in contact with the housing;

a seal moving with the inner member to sealably engage the tubular; and
the floating structure movable independent of the assembly when the tubular is sealed with the seal and the tubular is rotating.

Claim 92 has been amended so that none of the bearings contacting the radial outward surface of the inner member, i.e., the Harrison bearings 44, are in contact with the housing. As admitted, Reference II does not disclose the structure of the rotating head and the '721 Harrison patent discloses bearings 44 (contacting the radial outward surface of the inner element 41) being in contact with housing 42.

Therefore, Reference II and Harrison, alone and in combination, fail to teach or suggest all of the elements of Applicants' claimed subject matter. For these reasons, Applicants respectfully request withdrawal of the rejection.

93. (Currently Amended) Apparatus for communicating a drilling fluid from a riser having an axis and fixed relative to an ocean floor to a structure floating at a surface of the ocean, comprising:

means for moving the drilling fluid from an opening in the riser above the surface of the ocean adjacent a first level of the floating structure to a second level of the floating structure above said first level, the moving means being able to compensate for relative movement between the structure and the riser so as to allow the floating structure to move independent of the riser;

wherein a seal is substantially axially aligned with said riser axis, and

said seal is arranged to seal with the tubular while the tubular is moved along an axial direction.

Neither the Reference II or the '721 Harrison patent disclose "moving the drilling fluid from an opening in the riser above the surface of the ocean adjacent a first level of the floating structure to a second level of the floating structure above said first level." While both the Reference II and the '721 Harrison patent disclose floating structures, neither reference disclose the amended claimed subject matter. See also Examiner Dang's above reasons for allowance of claims 26-30 in US. Patent No. 6,263,982.

Therefore, Reference II and Harrison, alone and in combination, fail to teach or suggest all of the elements of Applicants' claimed subject matter. For these reasons, Applicants respectfully request withdrawal of the rejection.

94. (Currently Amended) A method of communicating a drilling fluid from a riser having an axis and fixed relative to an ocean floor to a structure floating at a surface of the ocean, comprising the steps of:

allowing the floating structure to move independent of said riser;

moving the drilling fluid from an opening in the riser above the surface of the ocean adjacent a first level of the floating structure to a second level of the floating structure above said first level;

wherein a seal is substantially axially aligned with said riser axis, and

said seal seals with the tubular while the tubular is moved along an axial direction.

Neither the Reference II or the '721 Harrison patent disclose "moving the drilling fluid from an opening in the riser above the surface of the ocean adjacent a first level of the floating structure to a second level of the floating structure above said first level." While both the Reference II and the '721 Harrison patent disclose floating structures, neither reference disclose the amended claimed subject matter. See also Examiner Dang's above reasons for allowance of claims 26-30 in US. Patent No. 6,263,982.

95. (Currently Amended) Apparatus for use with a structure for drilling in a floor of an ocean using a rotatable tubular and drilling fluid when the structure is floating at a surface of the ocean, comprising:

a riser;

a housing disposed above a portion of said riser, the housing having a first housing opening above the surface of the ocean;

an assembly having an inner member and removably disposed with said housing, the inner member rotatable relative to the housing and having a passage through which the rotatable tubular may extend;

a seal movable with the inner member to sealably engage the tubular; and

a flexible conduit for communicating the drilling fluid between the first housing opening and the structure whereby the structure is movable independent of the housing when the tubular is rotating.

“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006) cited with approval in *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 82 USPQ 2d at 1396 (2007). The Examiner has not provided a sufficient reason or explicit analysis of why the disclosures of the references should be combined. See *Ex Parte Erkey*, No. 2007-1375 (B.P.A.I. May 11, 2007) (slip op. at 8 – not binding precedent of the Board).

Neither the Reference II or the ‘721 Harrison patent disclose a housing disposed above a portion of a riser and having a first housing opening above the surface of the ocean.

Furthermore, to combine the riser Reference II with the riserless ‘721 Harrison patent, where these references are separated in time by almost 30 years and the ‘409 Watkins patent, the ‘721 Harrison patent, and the Leach patent (US 4,813,495) confirm the technological difficulties with risers in the 1960s to the 1980s, as discussed above, is merely using hindsight.

“In *Graham*, the Court held that the obviousness analysis begins with several basic factual inquiries: ‘[(1)] the scope and content of the prior art are to be determined; [(2)] differences between the prior art and the claims at issue are to be ascertained; and [(3)] the level of ordinary skill in the pertinent art resolved.’ After ascertaining these facts, the Court held that the obviousness *vel non* of the invention is then determined ‘against th[e] background’ of the *Graham* factors.(emphasis added). Clearly, the Court recognized the importance of guarding against hindsight, as is

evident in its discussion of the role of secondary considerations as “serv[ing] to guard against slipping into use of hindsight and to resist the temptation to read into the prior art the teachings of the invention in issue.”

Alza Corp. v. Mylan Laboratories, Inc., 464 F.3d 1286, 1289-1290 (Fed. Cir. 9/6/2006).

“[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of argument reliant upon *ex post* reasoning.” *KSR Int’l Co v. Teleflex*, 127 S. Ct. 1727, 82 USPQ 2d at 1397.

Therefore, Reference II and Harrison, alone and in combination, fail to teach or suggest all of the elements of Applicants’ claimed subject matter. For these reasons, Applicants respectfully request withdrawal of the rejection.

96. (Currently Amended) Apparatus for use with a structure for drilling in a floor of an ocean using a rotatable tubular and drilling fluid when the structure is floating at a surface of the ocean, comprising:

a riser extending between the floor of the ocean and above the surface of the ocean, said riser having an opening above the surface of the ocean;

means for sealing the tubular with respect to the riser; and

a flexible conduit for communicating the drilling fluid between the riser opening and the structure so as to compensate for relative movement of the structure and the riser when the floating structure is allowed to move independent of the riser.

“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006) cited with approval in *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 82 USPQ 2d at 1396 (2007). The Examiner has not provided a sufficient reason or explicit analysis of why the disclosures of the references should be combined. See *Ex Parte Erkey*, No. 2007-1375 (B.P.A.I. May 11, 2007) (slip op. at 8 – not binding precedent of the Board).

Neither the Reference II nor the ‘721 Harrison patent disclose a riser having an opening above the surface of the ocean and a flexible conduit for communicating the drilling fluid between the riser opening and the structure.

To combine the riser Reference II with the riserless '721 Harrison patent, where these references are separated in time by almost 30 years and the '409 Watkins patent, the '721 Harrison patent, and the '495 Leach patent confirm the technological difficulties with risers in the 1960s to the 1980s, as discussed above, is merely using hindsight.

“In *Graham*, the Court held that the obviousness analysis begins with several basic factual inquiries: ‘[(1)] the scope and content of the prior art are to be determined; [(2)] differences between the prior art and the claims at issue are to be ascertained; and [(3)] the level of ordinary skill in the pertinent art resolved.’ After ascertaining these facts, the Court held that the obviousness *vel non* of the invention is then determined ‘against th[e] *background*’ of the *Graham* factors.(emphasis added). Clearly, the Court recognized the importance of guarding against hindsight, as is evident in its discussion of the role of secondary considerations as “serv[ing] to guard against slipping into use of hindsight and to resist the temptation to read into the prior art the teachings of the invention in issue.”

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“[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of argument reliant upon *ex post* reasoning.” *KSR Int’l Co v. Teleflex*, 127 S. Ct. 1727, 82 USPQ 2d at 1397.

Therefore, Reference II and Harrison, alone and in combination, fail to teach or suggest all of the elements of Applicants’ claimed subject matter. For these reasons, Applicants respectfully request withdrawal of the rejection.

97. (Currently Amended) A method of sealing a riser having an axis while drilling in a floor of an ocean from a structure floating at a surface of the ocean using a rotatable tubular and drilling fluid, comprising the steps of:

sealing the tubular with respect to the riser;

allowing the floating structure to move independent of the riser; and

communicating the drilling fluid ~~between~~ from the riser above the surface of the ocean and the structure, using a flexible conduit, so as to compensate for relative movement of the structure and the riser.

“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006) cited with approval in *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 82 USPQ 2d at 1396 (2007). The Examiner has not provided a sufficient reason or explicit analysis of why the disclosures of the references should be combined. See *Ex Parte Erkey*, No. 2007-1375 (B.P.A.I. May 11, 2007) (slip op. at 8 – not binding precedent of the Board).

Neither the Reference II or the ‘721 Harrison patent disclose the above “sealing” or “communicating” steps in amended claim 97. See also Examiner Dang’s above reasons for allowance of claims 21-25 in U.S. Patent No. 6,263,982.

To combine the riser Reference II with the riserless ‘721 Harrison patent, where these references are separated in time by almost 30 years and the ‘409 Watkins patent, the ‘721 Harrison patent, and the ‘495 Leach patent confirm the technological difficulties with risers in the 1960s to the 1980s, as discussed above, is merely using hindsight.

“In *Graham*, the Court held that the obviousness analysis begins with several basic factual inquiries: ‘[(1)] the scope and content of the prior art are to be determined; [(2)] differences between the prior art and the claims at issue are to be ascertained; and [(3)] the level of ordinary skill in the pertinent art resolved.’ After ascertaining these facts, the Court held that the obviousness *vel non* of the invention is then determined ‘against th[e] background’ of the *Graham* factors.(emphasis added). Clearly, the Court recognized the importance of guarding against hindsight, as is evident in its discussion of the role of secondary considerations as “serv[ing] to guard against slipping into use of hindsight and to resist the temptation to read into the prior art the teachings of the invention in issue.”

Alza Corp. v. Mylan Laboratories, Inc., 464 F.3d 1286, 1289-1290 (Fed. Cir. 9/6/2006).

“[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of argument reliant upon *ex post* reasoning.” *KSR Int’l Co v. Teleflex*, 127 S. Ct. 1727, 82 USPQ 2d at 1397.

Therefore, Reference II and Harrison, alone and in combination, fail to teach or suggest all of the elements of Applicants’ claimed subject matter. For these reasons, Applicants respectfully request withdrawal of the rejection.

98. (Currently Amended) Apparatus for use with a structure for drilling in the floor of an ocean using a rotatable tubular and drilling fluid when the structure is floating at a surface of the ocean, comprising:

a riser fixable relative to the floor of the ocean, a portion of said riser extendable between the floor of the ocean and the surface of the ocean, said riser having a top, bottom and an internal diameter;

a housing disposed on the top of said riser, said housing having a first housing opening above the surface of the ocean and an internal diameter, said first housing opening being sized to discharge drilling fluid received from said riser;

a bearing assembly having an inner member and an outer member and being removably positioned with said housing, said inner member being rotatable relative to said outer member and having a passage through which the rotatable tubular may extend;

a seal movable with said inner member to sealably engage the tubular;

a disconnect member to disconnect said bearing assembly from said housing;
wherein

the floating structure is movable independently of said bearing assembly when said tubular is sealed with said seal and the tubular is rotating.

“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006) cited with approval in *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 82 USPQ 2d at 1396 (2007). The Examiner has not provided a sufficient reason or explicit analysis of why the disclosures of the references should be combined. See *Ex Parte Erkey*, No. 2007-1375 (B.P.A.I. May 11, 2007) (slip op. at 8 – not binding precedent of the Board).

Neither the Reference II or the ‘721 Harrison patent disclose a housing disposed on top of a riser and having a first housing opening above the surface of the ocean. Also, the above amended claim 98 includes the elements that Examiner Dang stated in his above reasons for allowance of claims 1-20 for U.S. Patent No. 6,263,982.

Furthermore, to combine the riser Reference II with the riserless '721 Harrison patent, where these references are separated in time by almost 30 years and the '409 Watkins patent, the '721 Harrison patent, and the '495 Leach patent confirm the technological difficulties with risers in the 1960s to the 1980s, as discussed above, is merely using hindsight.

"In *Graham*, the Court held that the obviousness analysis begins with several basic factual inquiries: '[(1)] the scope and content of the prior art are to be determined; [(2)] differences between the prior art and the claims at issue are to be ascertained; and [(3)] the level of ordinary skill in the pertinent art resolved.' After ascertaining these facts, the Court held that the obviousness *vel non* of the invention is then determined 'against th[e] *background*' of the *Graham* factors.(emphasis added). Clearly, the Court recognized the importance of guarding against hindsight, as is evident in its discussion of the role of secondary considerations as "serv[ing] to guard against slipping into use of hindsight and to resist the temptation to read into the prior art the teachings of the invention in issue."

Alza Corp. v. Mylan Laboratories, Inc., 464 F.3d 1286, 1289-1290 (Fed. Cir. 9/6/2006).

"[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of argument reliant upon *ex post* reasoning." *KSR Int'l Co v. Teleflex*, 127 S. Ct. 1727, 82 USPQ 2d at 1397.

Therefore, Reference II and Harrison, alone and in combination, fail to teach or suggest all of the elements of Applicants' claimed subject matter. For these reasons, Applicants respectfully request withdrawal of the rejection.

Reference II in View of '181 Williams Patent or '186 Murray Patent

Claims 46, 89, 92 and 98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reference II in view of Williams et al (U.S. Patent 5,662,181) or Murray et al (U.S. Patent 4,157,186) (sic), with the Examiner stating:

Reference II discloses a method of drilling an offshore well with lightweight fluids. On page C-9, it discloses the use of a rotating head at the top of a riser without telescopic joint. **Reference II does not disclose the structure of the rotating head.** However, either *Williams et al* '181 (see figure 3) or *Murray et al* '186 (see figures 1-7) disclose a rotating head including a housing that rotatably supports a removable assembly that includes an inner member, a radially outwardly disposed outer member, a plurality of bearings interposed between the inner and outer members in order to facilitate removably mounting the bearing assembly in the

housing while drilling or servicing the well (column 2, lines 36-42 in *Williams et al* or column 6, lines 1-4 in *Murray et al*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use of (sic) a rotating head having a structure as claimed in the Reference II in view of the teaching of Williams et al for the advantages pointed out above.

Contrary to applicant's argument, the assembly of Reference II as modified by Williams et al or Murray et al inherently "manages pressure on the drilling fluid" when the seal in their rotating blowout preventer sealingly engages the drill string while the drill string rotates during the course of drilling a borehole.

46. (Currently Amended) A system adapted for use with a rotatable tubular and a drilling fluid, comprising:

a marine riser;

an assembly removably disposed above a portion of the marine riser, the assembly comprising:

an inner member having a radially outward surface rotatable relative to the marine riser and the inner member having a passage through which the rotatable tubular may extend;

a radially outwardly disposed outer member;

a plurality of bearings interposed between the radially outward surface of the inner member and the radially outwardly disposed outer member; and

a seal moving with the inner member to sealably engage the rotatable tubular so that said assembly manages pressure on the drilling fluid in the marine riser while the tubular rotates; and

a housing, the assembly removably disposed within the housing.

89. (Currently Amended) A system adapted for use with a rotatable tubular and a drilling fluid, comprising:

a marine riser for use with the rotatable tubular;

an assembly removably disposed above a portion of the marine riser, the assembly comprising:

an inner member having a radial outward surface rotatable relative to the marine riser and having a passage through which the rotatable tubular may extend;

~~an a radially outwardly disposed~~ outer member disposed with the inner member;

a plurality of bearings on the radial outward surface of ~~contacting~~ the inner member; and

a seal moving with the inner member to sealably engage the tubular so that said assembly manages pressure on the drilling fluid in the marine riser while the tubular rotates; and

a housing, the assembly removably disposed within the housing without any of the bearings on the radial outward surface of the inner member being in contact with the housing.

92. (Currently Amended) A system adapted for use with a structure for drilling in a floor of an ocean using a riser, a rotatable tubular and a drilling fluid when the structure is floating on a surface of the ocean, the system comprising:

a housing disposed on top of said riser and having a first housing opening to discharge drilling fluid received from said riser;

an assembly adapted for removable positioning with said housing and having an inner member, a radially outwardly disposed outer member, and a plurality of bearings, wherein

the inner member having a radial outward surface ~~[[is]]~~ rotatable relative to the riser and ~~[[has]]~~ a passage through which the tubular may extend, and

the plurality of bearings disposed on the radial outward surface of ~~contacting~~ the inner member without any of the bearings being in contact with the housing;

a seal moving with the inner member to sealably engage the tubular; and

the floating structure movable independent of the assembly when the tubular is sealed with the seal and the tubular is rotating.

98. (Currently Amended) Apparatus for use with a structure for drilling in the floor of an ocean using a rotatable tubular and drilling fluid when the structure is floating at a surface of the ocean, comprising:

a riser fixable relative to the floor of the ocean, a portion of said riser extendable between the floor of the ocean and the surface of the ocean, said riser having a top, bottom and an internal diameter;

a housing disposed on the top of said riser, said housing having a first housing opening above the surface of the ocean and an internal diameter, said first housing opening being sized to discharge drilling fluid received from said riser;

a bearing assembly having an inner member and an outer member and being removably positioned with said housing, said inner member being rotatable relative to said outer member and having a passage through which the rotatable tubular may extend;

a seal movable with said inner member to sealably engage the tubular;

a disconnect member to disconnect said bearing assembly from said housing;
wherein

the floating structure is movable independently of said bearing assembly when said tubular is sealed with said seal and the tubular is rotating.

Amended Claims 46 and 89

U.S. Patent No. 4,157,186 to Murray et al. proposes that to continue drilling after penetrating a high pressure formation, it is necessary to seal the top of the well casing respective to the drill string. A rotating blowout preventer is proposed in the '186 Murray patent to sealingly engage the drill string to isolate the annulus formed between the borehole and the drill string from ambient. (Murray, col. 1, lns. 11-20). However, the Murray rotating blowout

prevention teaches that the drilling mud in the annulus flows from a lateral outlet flow passageway (diverter) in the housing of the rotating blowout preventer (Murray, col. 6, lns. 30-35) – not to manage pressure of the fluid in the marine riser while the tubular is drilling. (See also ‘181 Williams patent, col. 3, lns. 45-50).

Amended independent claims 46 and 89 now include the limitation of “the assembly manages pressure on the drilling fluid in the marine riser while the tubular rotates.”

There are no statements in any of the three relied on references to use a rotating control device to allow the operator to rotate the tubular to keep drilling while managing the pressure on the drilling fluid in the marine riser. Because the ‘186 Murray patent and the ‘181 Williams patent do not disclose a riser, much less a flowing rig, as discussed above, claims 46 and 89 are allowable.

The teachings of the ‘181 Williams patent and the ‘186 Murray patent, simply divert the drilling fluid from the rotating control device. See also ‘721 Harrison patent, col. 2, lns 40-41 and Figs. 2 and 3, reference 35. The use of a rotating control device or blowout preventer, as claimed in the present invention, allows the operator to keep drilling while managing the pressure of the drilling fluid in the marine riser.

Furthermore, to successfully argue combination of prior art elements according to known methods to yield predictable results, the U.S. Patent Office Examiner must articulate the below findings:

- (1) a finding that the prior art included each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference;
- (2) a finding that one of ordinary skill in the art could have combined the elements as claimed by known methods, and that in combination, each element merely would have performed the same function as it did separately;
- (3) a finding that one of ordinary skill in the art would have recognized that the results of the combination were predictable;
and
- (4) whatever additional findings based on the *Graham* factual inquires may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

Applicant submits that the elements of the relied on prior art in combination do not merely perform the function that each element performs separately. In particular, only Reference II proposes a rotating head for replacing a diverter or on top of a diverter (above the rotary table) for offshore drilling with lightweight fluids. As discussed above, both the '409 Watkins patent and the '721 Harrison patent teach away from using a marine riser and instead position a rotating head below the surface of the ocean above the wellhead. The '643 Jones patent (see Col. 4, lns. 5-18), the '186 Murray patent, and the '181 Williams patent propose rotating heads – but none for use with a marine riser, much less a floating rig.

Applicants claimed invention does not merely perform the function that each of above elements performs separately. In particular, Applicants rotating control head system for floating drilling rig applications using a marine riser is 1) compatible with underbalanced drilling and gas-liquid mud systems on floating drilling rigs, and 2) enables the use of pressurized mud systems so that the location of separators and shale shakers on floating drilling rigs are not limited by elevation.

Applicants achieve the above synergistic results by managing pressure in a marine riser by containing pressure on the fluid in the marine riser while drilling. Additionally, this pressurized fluid is communicated to a floating drilling rig by a flexible conduit to accommodate relative movement of the fixed riser and the moving floating rig.

Claims 99 and 100 depend directly from claims 46 and 89, respectively. Since claims 46 and 89 are allowable, claims 99 and 100 are allowable.

Amended Claims 92 and 98

The present application is a continuation of U.S. Patent No. 6,263,932 where Reference II, the '181 Williams patent and the '186 Murray patent were cited. In the Notice of Allowability mailed in the application resulting in claims 1-30 of U.S. Patent No. 6,263,982, Examiner Dang stated:

The following is an examiner's statement of reasons for allowance: As for **claims 1-20**, no prior art discloses or renders obvious a system adapted for use with a structure for drilling in the floor of an ocean using a rotatable tubular and drilling fluid when the structure is floating at a surface of the ocean as claimed and including a housing having an opening to discharge the drilling fluid received from the riser, the housing mounted on the top of the riser and containing a removable bearing assembly having an inner sealing member rotatable with a drill string relative to an outer member and wherein the floating structure moves independent of the bearing assembly (or the housing) when the drill string (or tubular) is sealed by the seal and the drilling string (or tubular) is rotating.

Amended claims 92 and 98 now include all the elements that Examiner Dang listed in his reasons for allowance where all the references in this rejection were considered. Furthermore, to combine the riser Reference II with the riserless '181 Williams patent, and/or with the riserless '186 Murray patent where both the '409 Watkins patent and the '721 Harrison patent confirm the technological difficulties with risers in the 1960s, as discussed above, is merely using hindsight.

“In *Graham*, the Court held that the obviousness analysis begins with several basic factual inquiries: ‘[(1)] the scope and content of the prior art are to be determined; [(2)] differences between the prior art and the claims at issue are to be ascertained; and [(3)] the level of ordinary skill in the pertinent art resolved.’ After ascertaining these facts, the Court held that the obviousness *vel non* of the invention is then determined ‘against th[e] *background*’ of the *Graham* factors.(emphasis added). Clearly, the Court recognized the importance of guarding against hindsight, as is evident in its discussion of the role of secondary considerations as “serv[ing] to guard against slipping into use of hindsight and to resist the temptation to read into the prior art the teachings of the invention in issue.”

Alza Corp. v. Mylan Laboratories, Inc., 464 F.3d 1286, 1289-1290 (Fed. Cir. 9/6/2006).

“[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of argument reliant upon *ex post* reasoning.” *KSR Int’l Co v. Teleflex*, 127 S. Ct. 1727, 82 USPQ 2d at 1397.

Therefore, amended claims 92 and 98 are not obvious in view of the relied on references and allowance is requested.

ALLOWABLE SUBJECT MATTER

Claims 43, 44, 48-54, 56-61, 64-68, 70-78 and 88 are allowed. Claims 99 and 100 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

EIGHTH SUPPLEMENTAL IDS

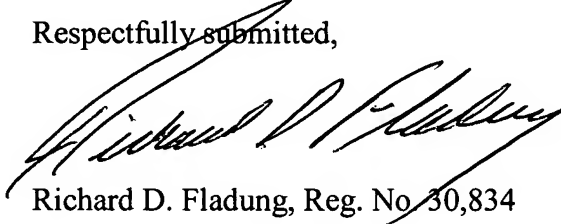
An eighth Supplemental IDS is filed concurrently herewith. Consideration of the cited references and initialing of each reference is respectfully requested.

CONCLUSION

Applicants respectfully submit that all issues and rejections have been adequately addressed, that all claims are allowable, and that the case should be advanced to issuance.

If the Examiner has any questions or wishes to discuss the claims, Applicants encourage the Examiner to call the undersigned at the telephone number indicated below.

Respectfully submitted,



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